

APPLICATION

FOR

UNITED STATES LETTERS PATENT

TITLE: FORMING ARRAY DISPLAYS

INVENTORS: ROBERT F. KWASNICK AND
STEPHEN P. SEDAKER

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FORMING ARRAY DISPLAYS

Background

This invention relates generally to displays made up of a plurality of tiles or panels that are abutted together, each panel forming a part of an overall displayed image so that the array display may show a composite image made up of the images contributed by each of the panels.

An array display may be formed from display panels. The display may be emissive displays including those using organic light emitting diodes (OLEDs). Each panel in turn may comprise an array of display modules comprising an emissive front part and a back part which is in electrical contact with rows and columns of the front part and may also comprise integrated circuits that are part of the array display drive circuitry.

Each module may include an array of pixels with row and column address lines. Each panel may further comprise an optical integrator plate in some cases to which the emissive side of the front part is attached.

The modules may be attached to a frame by way of heat spreaders, for example. The heat spreaders may be attached to the back member and integrated circuits by thermal attachment material such as thermal grease or epoxy with good thermal conductivity.

It is desirable that the seams between panels and modules be as unnoticeable as possible. To the extent that the seams between panels and modules are noticeable, the creation of a visually integrated, composite image made up of the contributions of all of the panels and modules is diminished. Thus, it is desirable, to the greatest possible extent, to create an array display that has a seamless appearance so that the user is not distracted by the fact that the overall display's image is made up of the contributions of a plurality of smaller units.

A black matrix of strips may be defined over a given module to obscure the boundaries between pixels. However, the black matrix on a module may be ineffective to obscure the boundaries between arrays of modules and arrays of panels.

Thus, there is a need for ways to improve the seamless appearance of array displays.

Brief Description of the Drawings

Figure 1 is a top plan view of an array display in accordance with one embodiment of the present invention;

Figure 2 is a cross-sectional view taken generally along the lines 2-2 in Figure 1 during assembly;

Figure 3 is a partial, enlarged, cross-sectional view of the embodiment shown in Figure 2 after assembly;

Figure 4 is a cross-sectional view taken generally along the line 2-2 in Figure 1 during assembly in